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Eight Species of Thrips New for The Netherlands and Some Taxonomical Changes in *Stenchaetothrips, Thrips* and *Hoplothrips* (Thysanoptera)

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Thysanoptera species are recorded as new for the Dutch fauna: Aeolothripidae: *Aeolothrips fasciatus,* Thripidae: *Stenchaetothrips biformis* s.s., *Dendrothrips degeeri, Mycterothrips annulicornis, Mycterothrips salicis, Odontothrips ignobilis, Oxythrips ulmifoliorum, Neohydatothrips gracilicornis, Thrips origani,* and Phlaeothripidae: *Bolothrips icarus, Haplothrips setiger.* These species are known to occur elsewhere in Europe. *Stenchaetothrips biformis* is suspected to consist of two species: *S. biformis* s.s. and possibly *S. oryzae. S. biformis* s.s. is recorded here for the first time for Germany. *Thrips inopinatus* and *T. fallaciosus* are synonymized with *T. roepkei,* which was described after a monstruose female-type specimen. *Hoplothrips arnoudi* is considered a junior synonym of *H. pedicularius.*

Keywords: *Thrips, Stenchaetothrips, Hoplothrips.*

New Species for The Netherlands

The Netherlands has an Atlantic climate with mild winters and cool summers. Many European insect species therefore have their north-western distribution limit in The Netherlands. At the borders of their distribution range as a rule insects occur in low numbers and are therefore rarely collected in these areas. Most of the new species for the Dutch fauna recorded below belong to this category. Unless stated otherwise listed specimens are kept in the collection of the Plant Protection Service, Wageningen.

AEOLOTHRIPIDAE

– *Aeolothrips fasciatus* (Linnaeus, 1758)

Floricolous, polyphagous and zoophagous. – Holarctic

- Wageningen, 10.05.1936, *Ranunculus,* leg. J. Doeksen, 1♂
- Wageningen, 17.05.1936, *Ranunculus,* leg. J. Doeksen, 1♂
- Heelsum, 18.05.1936, *Cerastium,* leg. J. Doeksen, 1♂
- Haelen, 21.07.1961, *Vicia cracca,* leg. P. van Uden, 1♂.
- Nijmegen, 22.06.1964, *Euphorbia,* leg. W. P. Mantel, 1♀.
- Delden, 02.09.1987, 'chrysant', leg. C. A. Assen, 1♀.
- Breda, 22.06.1993, *Fragaria,* leg. St. Proeftuin Noord-Brabant, 1♀.

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THRIPIDAE

– *Mycterothrips salicis* (Reuter, 1878)

Foliicolous, on Salicaceae, phytophagous. – Holarctic

• Ede 26.03.1995, *Prunus,* leg. G. Vierbergen, 1♀.

• Wageningen, 28.07.1998, *Salix babylonica* 'Tortuosa' in garden, leg. A. van Frankenhuyzen, 7♀♀, 4 larvae II4♀♀, 1♂.

• Wageningen, 07.08.1998, *Salix* x *rubens* in garden Plant Protection Service, leg. G. Vierbergen, 3 larvae II♀♀, 1 larva I♀.

• Ede, 27.08.1998, *Salix babylonica* 'Tortuosa', leg. G. Vierbergen, 1♀, 1 larva II♀, 2 larvae I♀♀.

– *Neohydatothrips gracilicornis* (Williams, 1916)

Foliicolous, on Leguminosae, especially *Vicia cracca,* phytophagous. – Palaearctic

• Wageningen, in experimental garden Plant Protection Service, on *Vicia cracca,* 14.09.2001, leg. G. Vierbergen, 1♂, 2 larvae II♀♀, 1 larva I♀.

– *Oxythrips ulmifoliorum* (Haliday, 1836)

Foliicolous, on *Ulmus,* phytophagous. – European

• Wageningen, NL, 19.09.2002, glasshouse Plant Protection Service, on yellow sticky board, leg. L. Hüner, 1♀, macropterous.

– *Stenchaetothrips biformis* (Bagnall, 1913)

Foliicolous, recorded from *Phalaris* and *Phragmites,* phytophagous. – Palaearctic, Oriental, Australian?

• Ede, 'De Kreelse Plas', 22.09.2002, in vegetative shoots of *Phragmites australis,* leg. G. Vierbergen, 11♀♀, 3♂♂, 1 larva II♂.

• Petten, 15.07.2003, in vegetative shoots of *Phragmites australis,* leg. G. Vierbergen, 2♀♀, 2♂♂, 1 pupa, 1 prepupa, 3 larvae II♀, 2 larvae II♂♂, 3 larvae I♀.

• Petten, 16.07.2003, in vegetative shoots of *Phragmites australis,* leg. G. Vierbergen, 15♀♀, 10♂♂, 2 larvae II♂♂, 1 larva I♀,1 larva I♂.

– *Thrips origani* Priesner, 1926

Foliicolous and floricolous, on *Origanum,* phytophagous. – European, except in Northern Europe

• Eys, 'De Piepert', 12.08.1998, *Origanum vulgare,* leg. G. Vierbergen, 6♀♀, 5 larvae II.

• 't Rooth, quarry, 12.08.1998, *Origanum vulgare,* leg. G. Vierbergen, 2♀♀, 1 larva II.

• Simpelveld, railway station yard, 12.08.1998, leg. G. Vierbergen, *Origanum vulgare,* 4♀♀.

• Wageningen, experimental garden Plant Protection Service, 14.09.2001, leg. G. Vierbergen, 1♀.

PHLAEOTHRIPIDAE

– *Bolothrips icarus* (Uzel, 1895)

In xerothermic vegetation, on decaying small grasses (Poaceae), fungivorous. – Widespread in Europe, introduced in North America

- Cadzand, in dune grassland, 03.05.2001, in moss, leg. B. Aukema, 3♀♀, 1♂.
- Bemelen, Bemelerberg, in chalk grassland, 17.05.2003, in moss, leg. B. Aukema, 1♀.
- idem, 02.07.2003, *Thymus,* 1♀, 2♂♂.

– *Haplothrips setiger* Priesner, 1921

Floricolous (adults), on many dicotyledonous plants, phytophagous. – Western Palaearctic (Canary Isles, Mediterranean Europe and from southern England to Poland and Sweden (Vasiliu-Oromulu et al., 2000)

- Rotterdam, 03.08.2001, Rotterdam Harbour, G & F terminal, several weeds, leg. S. Combee, PD Barendrecht (PD21007546), 1♀.
- Rotterdam, 28.08.2001, Rotterdam Harbour, G & F terminal, *Senecio inaequidens,* leg. S. Combee, PD Barendrecht (PD21008060), 1♀.

Taxonomical Changes

THRIPIDAE – ***Stenchaetothrips biformis*** (Bagnall, 1913)

- *Bagnallia biformis* Bagnall, 1913: 237.
- *Thrips dobrogensis* Knechtel, 1964: 375.

MATERIAL STUDIED:

Stenchaetothrips biformis s.s.

- Germany: Merfeld (Torfvennteich), Kreis Dülmen, 09.08.2002, in vegetative shoots of *Phragmites australis,* leg. G. Vierbergen, 3♀♀ (new for Germany).
- Poland: Torún, 13.05.2003, in vegetative shoots of *Phragmites australis,* leg. G. Vierbergen, 3♀♀.
- The Netherlands: see above.

Stenchaetothrips biformis 'rice form'

- Surinam: New Nickeri, 07.07.1997, *Oryza sativa,* leg. J. Wildschut, 12♀♀, 6♂♂ (new for Surinam).

Bhatti (1969) synonymized *Stenchaetothrips oryzae* (Williams, 1916) and *S. dobrogensis* (Knechtel, 1964) with *Stenchaetothrips biformis* Bagnall. Reyes (1994) remarks, however, in her description of *S. biformis* the presence in the British females of postocular setae pair I, which are absent in material from the Philippines.

Results of field sampling in Germany and The Netherlands by the author showed that *S. biformis* has also some other major differential characters (see below) with the tropical form of *S. biformis* ("the rice form"). This form of rice is a widespread pest on

different Poaceae (especially rice) in the tropics. *S. biformis* sensu stricto shows up to be common in vegetative shoots of *Phragmites australis* in temperate Europe (England: Bagnall, 1913, Bhatti, 1982; The Netherlands; Germany; Poland: Zawirska, 1987; Czech Republic: Pelikan, 1984). Its distribution range, however, probably extends far into the tropics (see below). The rice form can be recognized and separated from *S. biformis* s.s. as indicated in the key below.

Key for differentiating the rice form of *Stenchaetothrips biformis* with *S. biformis* s.s. in the adult stage:

– Postocular setae pair I absent *(Figs 1, 2A);* length/width antennal segment IV 1.8–1.9 and V 1.7–1.8 *(Fig. 3A);* pronotum with about 8 discal setae; in the female abdominal sternites (III) IV–VI with variable shaped small glandular areas, on sternite VI width up to 60 µm, but usually smaller, its length up to 4 µm, often the areas split in two or three parts *(Fig. 4);* males usually uniform dark brown and with abdominal sternite IV with glandular area about two-thirds the width of the sternite. On *Oryza sativa* in Asia and South America

***S. biformis* 'rice form'**

– Postocular setae pair I usually present *(Figs 1, 2B),* 22–29 µm long; length/width antennal segment IV 2.4–2.6 and V 2.0–2.2 *(Fig. 3B);* pronotum with about 18 discal setae; in the female abdominal sternites without glandular areas; males usually bicoloured: head and thorax orange-yellow, thorax additionally with brown areas and abdomen brown; males with abdominal sternite IV with glandular area less than half the width of the sternite. On *Phragmites australis* and other Poaceae in Europe and Asia

S. biformis s.s.

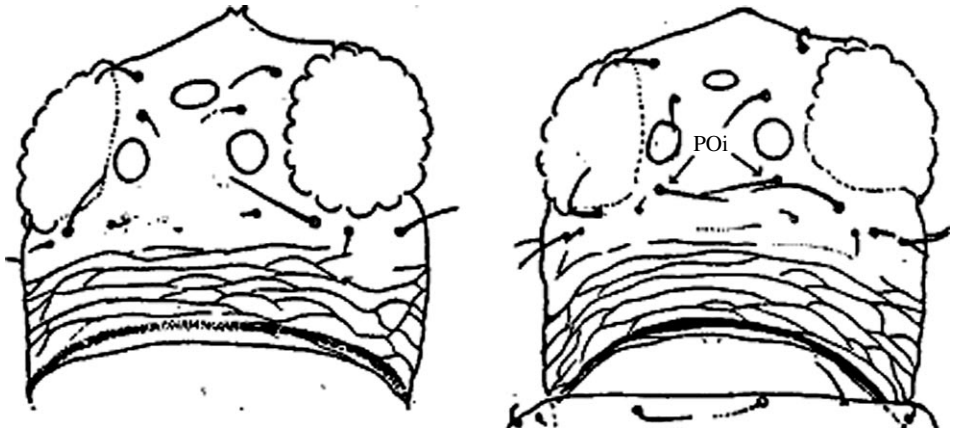

Fig. 1. Heads of female paratypes of *Stenchaetothrips biformis* (after Bhatti, 1982, POi indicated by the author)

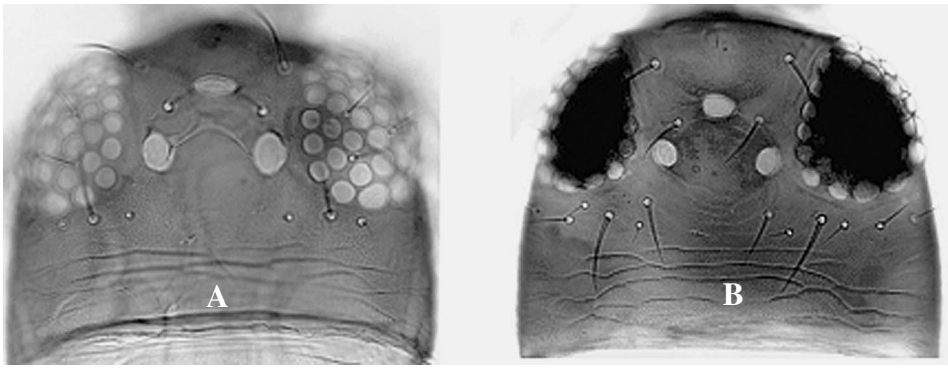

Fig. 2. Head of female of *Stenchaetothrips biformis*
A: *S. biformis* 'rice form', New Nickeri, Surinam, 07.07.2003, *Oryza sativa,* leg. J. Wildschut;
B: *S. biformis* s.s., Ede, The Netherlands, 22.09.2002, *Phragmites australis,* leg. G. Vierbergen

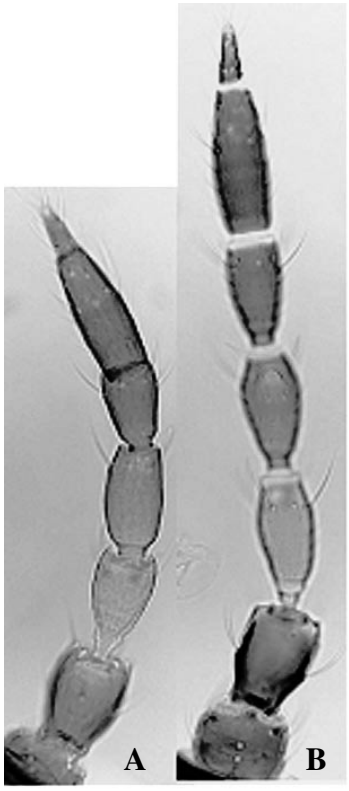

Fig. 3. Antenna of female of *Stenchaetothrips biformis*
A: *S. biformis* 'rice form', New Nickeri, Surinam, 07.07.2003, *Oryza sativa,* leg. J. Wildschut;
B: *S. biformis* s.s., Ede, The Netherlands, 22.09.2002, *Phragmites australis,* leg. G. Vierbergen

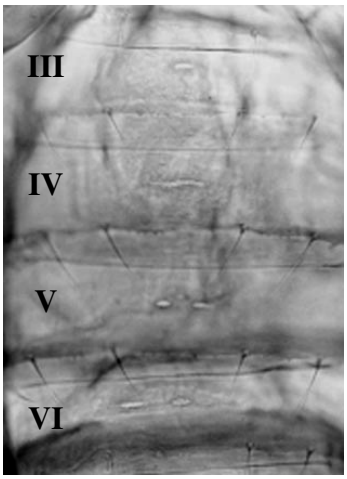

Fig. 4. *Stenchaetothrips biformis* 'rice form', abdominal sternites III–VI: area porosae; New Nickeri, Surinam, 07.07.2003, *Oryza sativa,* leg. J. Wildschut

Based on a study of material from Bangladesh, Cambodia, Guyana, India, Nepal and Venezuela in the collection of the Systematic Entomology Laboratory at Beltsville, MD, USA, Steve Nakahara concluded that *S. oryzae* and *S. biformis* are two different species (pers. comm., July/August 2003). Richard zur Strassen reported to me: "Nach Deiner Bestimmungs-Tabelle für *oryzae/biformis* kann man die Weibchen meist gut voneinander trennen." Remarkable, however, is a series from the Philippines (taken from "Imperata") in the Senckenberg Institut at Frankfurt am Main, Germany. The specimens of this series have the characters of *S. biformis* s.s., except the completely dark coloured males (pers. comm., July/August 2003). Although this species was not reported by Reyes (1994), it is apparently present on the isles.

Williams described *Stenchaetothrips oryzae* from a series of females and according to his publication deposited the type in the British Museum of Natural History in London. The type series is kept at the British Museum and one of the specimens is labelled as holotype (John Martin, pers. comm. to B. Aukema, August 1, 2003). Bhatti (1982) described two paratypes of *S. oryzae* (erroneously indicated as syntypes), which probably belong to the rice form and *S. biformis* s.s. *(Fig. 1).* It depends which form of these is assigned as holotype whether *S. oryzae* is the valid name for the 'rice form' or not.

THRIPIDAE – ***Thrips roepkei*** Doeksen, 1953

- *Thrips roepkei* Doeksen, 1953: 169
- *Thrips fuscipennis* (non Haliday, 1836): Franssen and Mantel, 1962: 117. – misidentification.
- *Thrips inopinatus* zur Strassen, 1963: 523, syn. nov.
- *Thrips fallaciosus* Nakahara, 1994: 51, syn. nov.

MATERIAL STUDIED:

• USA, Lakeville, NY, 09.07.1930, terminal flowers of *Salix,* 1♀ (*Thrips fallaciosus* Nakahara, det. S. Nakahara).

• NL, Scheveningen, 06.07.1936, *Solanum,* leg. J. Doeksen, 1♀ (type specimen).

• NL, Scheveningen, 06.07.1936, *Solanum,* leg. J. Doeksen, 5♀♀ (*Thrips fuscipennis* Haliday, det. J. Doeksen).

• NL, Scheveningen, 08.07.1936, *Solanum nigrum,* leg. J. Doeksen, 2♀♀ (*Thrips fuscipennis* Haliday, det. J. Doeksen).

• USA, Edwardsville, IL, 18.06.1950, *Ranunculus,* 1♀ (*Thrips fallaciosus* Nakahara, det. S. Nakahara).

• USA, Ithaca, NY, 03.07.1950, *Solanum dulcamara* Linnaeus, leg. J. D. Hood, 2♀♀ (*Thrips fallaciosus* Nakahara, det. S. Nakahara).

• USA, Ithaca, NY, 12.11.1950, dead branches of *Prunus cerasus* Linnaeus, leg. J. D. Hood, 2♀♀ (*Thrips fallaciosus* Nakahara, det. S. Nakahara).

• Germany, Frankfurt am Main, 29.06.1962, *Solanum dulcamara* Linnaeus, leg. R. zur Strassen, 1♀, 1♂ (*Thrips inopinatus* Zur Strassen, det. R. zur Strassen).

• NL, Scheveningen, 06.07.1995, *Solanum dulcamara* Linnaeus, leg. M. G. M. Jansen and G. Vierbergen, 66♀♀, 7♂♂, 1 larva II♀ (*Thrips inopinatus* zur Strassen, det. G. Vierbergen).

• NL, Scheveningen, 15.07.2003, *Solanum dulcamara* Linnaeus, leg. G. Vierbergen, 74♀♀, 5♂♂, 4 larvae II, 1 larva I (*Thrips inopinatus* zur Strassen, det. G. Vierbergen).

On 6th July, 1936 J. Doeksen sampled 6 females of thrips from *Solanum,* which he identified as the common Palaearctic *Thrips fuscipennis* Haliday, with the exception of a single female *(Figs 5 and 6).* He described this specimen as *Thrips roepkei* (in honour of J. Roepke, formerly professor in Entomology at the Agricultural University of Wageningen), based on the possession of 'very short and stout setae, especially upon the posterior margin of the prothorax' (Doeksen, 1953). In the description he mentions *Solanum nigrum* as host plant, which he indicated on the type slide as *'Solanum'.* Two days later Doeksen again sampled at Scheveningen and collected two additional females identified as *T. fuscipennis.* The seven *T. fuscipennis* females actually belong to *T. inopinatus* zur Strassen, 1963, a monophagous species living on *Solanum dulcamara* Linnaeus. With the aim to collect more specimens of *T. roepkei* M. G. M. Jansen and the author sampled exactly 59 years later at the same place (also on 6th July). We could not find *Solanum nigrum* in the dunes around Scheveningen, but found only some seedlings in a private garden in the town at that time. In the dunes, however, specimens identical to those collected by Doeksen and identified by him as *T. fuscipennis,* were easily collected in high numbers on *Solanum dulcamara* in 1995 as well as in 2003. Doeksen appearently had difficulties with the identification of the host plant and very likely he collected from *Solanum dulcamara* and not from *Solanum nigrum* as he indicated on the microscopic slides with the females collected on 8th July and in the publication. However, we could not find specimens with short and stout setae on the pronotum *(Fig. 7).* The type specimen of *T. roepkei* has the body sculpture, colouration, and setal positions identical with those of *T. inopinatus,* but almost all (!) body,

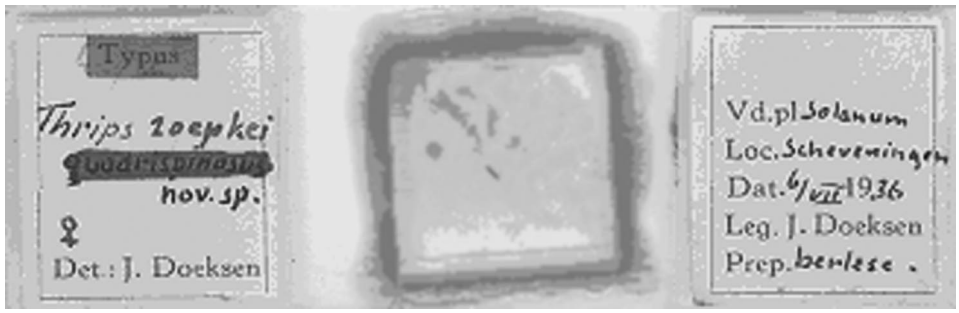

Fig. 5. Microscopic slide with holotype female of *Thrips roepkei* Doeksen

Fig. 6. Holotype female of *Thrips roepkei* Doeksen

leg and antennal setae are stouter and are about a half to two thirds as long as those in *T. inopinatus (Fig. 8).* The setae (fringing cilia included) of the wings have the usual length, except the setae on the basal half of the scale and extreme basal forewing setae, which are also short and stout *(Fig. 9).* I consider the stout and short setae of *T. roepkei* to be abnormal and I conclude that *T. inopinatus* is a junior synonym of *T. roepkei.*

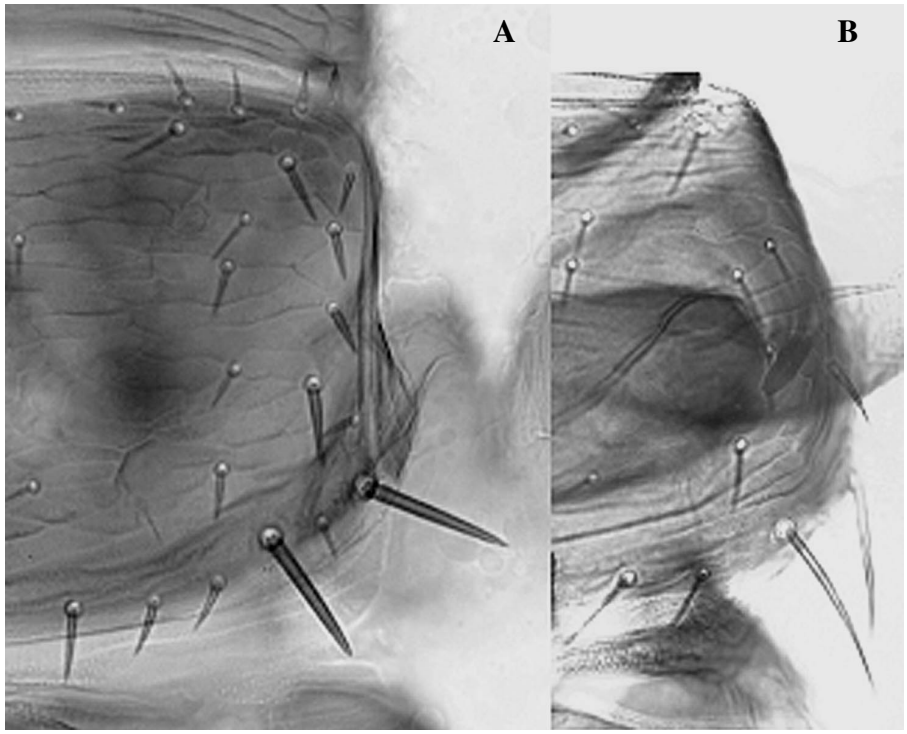

Fig. 7. Right side of pronotum of female
A: *Thrips roepkei* Doeksen, holotype;
B: *Thrips roepkei* Doeksen; Tiel, The Netherlands, 3-vi-1995,
Solanum dulcamara, leg. G. Vierbergen

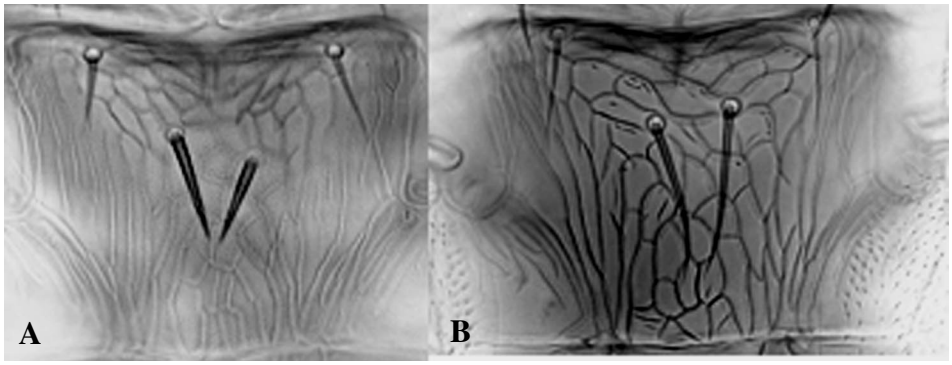

Fig. 8. Metanotum of female
A: *Thrips roepkei* Doeksen, holotype;
B: *Thrips roepkei* Doeksen; Tiel, The Netherlands, 11.07.1993,
Solanum dulcamara, leg. M. G. M. Jansen

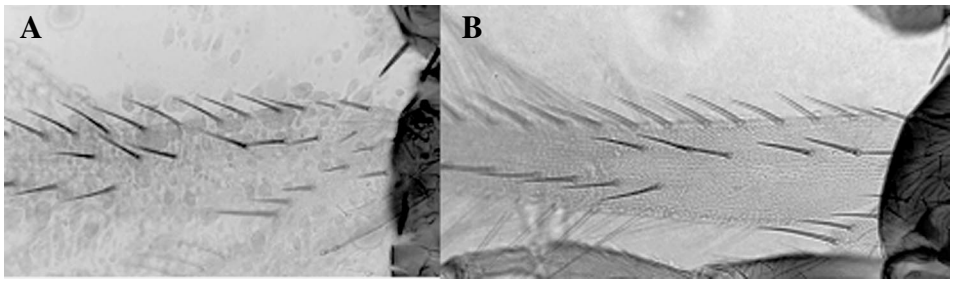

Fig. 9. Basal half of forewing of female
A: *Thrips roepkei* Doeksen, holotype;
B: *Thrips roepkei* Doeksen; Tiel, The Netherlands, 11.07.1993,
Solanum dulcamara, leg. M. G. M. Jansen

Also *T. fallaciosus* Nakahara, 1994, must be regarded as a synonym of *T. roepkei. T. fallaciosus* is distributed from Alaska to the central USA (Colorado). It is not uncommon in the northern USA and Canada. The hosts listed are from genera belonging to 14 families: *Acer, Angelica, Betula, Brassica, Epilobium, Fraxinus, Gladiolus, Lysimachia, Pinus, Populus, Prunus, Rorippa, Ranunculus, Rumex, Salix, Sisymbrium, Solanum* and *Spiraea.* Additionally the species was recorded from a flower of an unidentified Asteraceae. Just like *T. roepkei, T. fallaciosus* was formerly misidentified and reported as *T. fuscipennis* (Nakahara, 1994). For its separation from other species of *Thrips T. fallaciosus* was not compared with the European *T. inopinatus* (Nakahara, in litt., 1996). Morphologically I could not find any significant differences between *T. roepkei* and *T. fallaciosus* in the adults. *T. roepkei* is known exclusively from *Solanum dulcamara,* while *T. fallaciosus* is likely to have a broader host plant range, probably with *S. dulcamara* included (on which it has been reported also). The host plant range, however, is unclear, because only adults are reported, which gives no indication for reproduction on the mentioned host. *T. fallaciosus* cannot be regarded a good species unless morphological features of the larvae or DNA-analysis show it is significantly different from *T. roepkei.*

PHLAEOTHRIPIDAE – ***Hoplothrips pedicularius*** (Haliday, 1836)

- *Phlaeothrips pedicularia* Haliday, 1836: 441
- *Hoplothrips arnoudi* Mantel, 1964: 112, syn. nov.

In June 1998 during his study of Norwegian *Hoplothrips* species in woodland, S. Kobro (Norwegian Crop Research Institute, Fellesbygget, Norway) came across a specimen of *Hoplothrips pedicularius* (Haliday, 1836). *H. pedicularius* is a European species living on the bark of trees and on dead branches. At first it was suspected to be *H. arnoudi* Mantel, but both Dr. R. zur Strassen (1999, in litt.) and the author concluded *H. arnoudi* to be identical with *H. pedicularius* after investigation of the type material of *H. arnoudi.* From the paper with the original description of *H. arnoudi* (Mantel, 1964) I conclude that Prof. H. Priesner as well as the author of *H. arnoudi* overlooked *H. pedicularius.*

Acknowledgement

Dr. Berend Aukema (PPS, Wageningen), Prof. Laurence Mound (CSIRO, Canberra, Australia), Steve Nakahara (SEL, Beltsville, MD, USA) and Dr. Richard zur Strassen (Senckenberg Institut, Frankfurt am Main, Germany) gave helpful remarks and stimulated to finish the taxonomical part.

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